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BATS FROM NEW MEXICO AND ARIZONA

BY GLOVER M. ALLEN

Due to the generous interest of Col. John E. Thayer and Dr. Thomas Barbour, the Museum of Comparative Zoölogy has lately received a number of bats from New Mexico and Arizona a few notes on which seem worth recording. They were obtained chiefly by Messrs. Wharton Huber and R. D. Camp, the former while collecting in the vicinity of Las Cruces, New Mexico, for Colonel Thayer, and Mr. Camp during an expedition to the desert ranges of the Huachuca, Oro Blanco, Cayetano, and Patagonia Mountains of southeastern Arizona. The following ten species are represented.

***Macrotus californicus* Baird**

CALIFORNIA LEAF-NOSED BAT

This species is well known to inhabit the hotter portions of southern California and Arizona. Rehn (1904) has recorded specimens from Tombstone, Arizona, and there is a specimen in the United States National Museum from near Tucson. The Camp collection contains fifteen of these bats, captured in a deserted mine tunnel, January 24, in the Cayetano Mountains, Arizona, at 4000 feet altitude. All but two were adult females. According to Mrs. Grinnell's observations in California, it seems likely that this species is somewhat migratory; at least, they withdraw in winter from certain localities where they were found in spring and summer. Two other specimens are from Superior, Arizona.

***Chceronycteris mexicana* Tschudi**

LONG-NOSED BAT

An adult female secured by Mr. W. W. Brown in the Huachuca Mountains, September 27, 1920, is apparently the second specimen to be taken within the United States. The other record is of one captured in the Chiricahua Mountains, eight miles west of Paradise, Arizona, August 17, 1904 (see Miller, 1906). A comparison of our specimen with a female from Morelos, Mexico, reveals no important differences, though the skull of the former is a trifle the smaller. It is interesting in possessing on the right side of the upper jaw, a persistent milk tooth, directly behind and in contact with the canine. The

retention of this short recurved spicule is probably to be correlated with the length of jaws and the consequent uncrowded condition of the small teeth, thus allowing sufficient room to prevent the milk tooth from being pushed out.

Elliot in his *Land and Sea Mammals of Middle America* (1904) calls this the "Tres Marias Island Bat," but the supposed record for these islands turns out to be erroneous, as the species was really *Glossophaga mutica* (see Nelson, 1899, p. 14).

***Myotis velifer* (J. A. Allen)**

CAVE BAT

Mr. Camp captured two males of this species on April 20 in Montezuma Cañon, Huachuca Mountains, at 6000 feet altitude.

***Myotis occultus* Hollister**

HOLLISTER'S BAT

Hitherto this rare species has been found only on the west side of the Colorado River in extreme southeastern California. Hollister's two specimens were taken ten miles above Needles, San Bernardino County, May 14, 1905, and later, in May, 1910, six additional examples were collected by an expedition from the University of California. I have now to record it for the first time from New Mexico, where Mr. Huber obtained a female, May 23, 1920, three miles west of Las Cruces, on the Rio Grande. It was shot after dusk, as it flew through an orchard and under some large cottonwood trees. Two other bats, shot at the same time, and perhaps of the same species, could not be found. Dr. Joseph Grinnell, whose expedition obtained the six specimens noted above, suggests that this species is a late spring arrival in the region where it was found, since his party, "although collecting along the Colorado River from February 15 until May 15, failed to detect this bat until the first week in May." It will be seen that Mr. Huber's specimen was captured late in the same month, also. Perhaps it may be late in coming out of hibernation, rather than a late migrant from any considerable distance southward.

This species is remarkable among the North American *Myotis* in that the upper middle premolar (*pm*³) is in process of becoming lost. According to Mrs. Grinnell (1918, p. 262), this tooth is absent from both sides of the upper jaw in four of the eight known specimens. In the

specimen from Las Cruces, however, it is absent on the left side only. Here the anterior premolar (pm^2) as if taking advantage of the loss of the middle one, is noticeably larger than the anterior premolar of the opposite side and stands fully in the tooth row so as to fill the space completely between canine and last premolar (pm^4). On the opposite (left) side, the anterior premolar lies just inside the axis of the tooth row, while the middle premolar (pm^3), much smaller, is forced even more inward.

This tendency to lose certain of the teeth is seen in many and very remotely related species of bats. It is not necessarily a result of the gradual shortening of the tooth row to produce greater crushing power for as in the Las Cruces specimen, the anterior premolar of the right side filled the space of two on the opposite side. The frequency with which the middle premolar is missing in this species indicates that the upper dentition is now in course of evolution from a three-premolar to a two-premolar stage. Apparently, to judge from the available specimens, the latter, more reduced condition has made such headway as to be now as frequent as the three-premolar stage. Should it eventually prevail within the species, the normal dentition would then have the same formula as in *Lasionycteris*, *Corynorhinus*, and certain other genera, so that it might come to be placed in a genus distinct from *Myotis*. Thus we may have in *Myotis occultus* a genus in the making, a species now referred unhesitatingly to *Myotis*, but which, if the loss of the middle premolar became permanent, would perhaps come to be regarded as a monotypic genus, characterized by its reduced dental formula.

Pipistrellus hesperus (H. Allen)

WESTERN BAT

This little whitish species with its black contrasting membranes, is confined more or less closely to the Great Basin. Although probably common locally, there is but one specimen in the collections here reported on, a male taken October 1, on the west side of the Organ Mountains, New Mexico, by W. Huber.

Eptesicus fuscus (Beauvois)

LARGE BROWN BAT

At Las Cruces, New Mexico, Mr. Huber found a considerable colony of this common and widespread species living in the roof of a building

where by a narrow crack they gained entrance to the space above the ceiling. Here, on June 28, he collected 23 specimens by dislodging them from their retreat. Of these, 15 were adult females, and the rest were well-grown young, probably at least a week or two old, the largest with short hair, and nearly a third adult size. Curiously, all but one of these eight young were males. The absence of adults of the latter sex may indicate that there is a segregation of the sexes at this season. A few were also found with a colony of free-tailed bats in a cave 15 miles northwest of Las Cruces, New Mexico, (opposite Shalem Colony). "The cave is about 50 feet deep by 30 feet wide, 16 or 18 feet high at the entrance, the roof sloping back to the floor in the rear. It is evidently of volcanic origin as the whole face of the hill is black and looks like lava. An arroyo rises at the entrance of the cave. The floor is covered with bat guano to the depth of a foot or more in places. Several of these bats were driven from crevices in the cave but managed to hide so that they could not be located again."

Sharing the cave with the brown and free-tailed bats, were ten pairs of cliff swallows with their mud nests attached to the ceiling near the entrance. A great horned owl was collected in the cave.

Nycteris cinerea (Beauvois)

HOARY BAT

Very little is definitely known of the breeding range of the hoary bat. In the eastern United States it is generally believed to be a migrant only; or from the Carolinas southward, a wintering species, breeding probably in Canada and perhaps the northernmost of the states. For California, however, Mrs. Grinnell (1918) supplies three July records out of a total of 55 for that State, and these three are all of adult males. In Mr. Huber's collection are two adult females which he found hanging in willows, five miles west of Las Cruces, New Mexico (3800 feet altitude), both on August 27, 1920. The discovery of two at the same locality on this date, suggests that they were early migrants just arrived from the northward. The same trees had been carefully searched for warblers the day before. Yet there is also some evidence that the species is present all summer in parts of the Southwest, for Mr. Camp's collection contains an alcoholic male from the Huachuca Mountains, taken June 26, at an elevation of 5200 feet. In addition, W. W. Price reported it "not uncommon" in the Huachuca Mountains during the

summer of 1893 (J. A. Allen, 1895, p. 247); and Attwater took one at Cubbra Springs, 18 miles west of San Antonio, Texas, in the early summer of 1891 (J. A. Allen, 1896, p. 71). I am unable to distinguish Camp's Huachuca specimen, or Huber's Las Cruces females, from others taken in eastern United States.

***Corynorhinus rafinesquii pallescens* Miller**

PALLID LUMP-NOSED BAT

Colonies of these big-eared bats seem to be scattered and of relatively few individuals. Mr. Huber did not obtain the species at all during his stay of several months in New Mexico. In Arizona, however, Mr. W. W. Brown secured a female, September 30, in the Huachuca Mountains, and Mr. Camp collected fourteen of both sexes in the same range at different dates between March 28 and May 11, altitudes varying from 5200 to 7800 feet. Of twelve taken February 7, in the Oro Blanco Mountains, Arizona, (4600 feet) all but two were females. A similar disproportion of sexes in the colonies, one way or the other, is recorded by Mrs. Grinnell in her excellent summary of the habits of this species in California.

***Antrozous pallidus* (Le Conte)**

PALLID BAT

In late July, Mr. Huber found well-grown young in colonies of this species at Las Cruces and Mesilla Park, New Mexico. At the former locality, five adult females and nine young were taken July 16 from behind the window casing of an abandoned sanitarium; and four days later at Mesilla Park, seven adult females and five young were captured from a colony of some 200, living in the spaces above the doors of an old alfalfa barn. The young bats were nearly full grown but in color the back is more dusky than in the adults, and the buffy tinge is lacking. The absence of adult males in the catch may indicate that they were keeping apart at this season. Mrs. Grinnell records a similar segregation on the part of the Pacific pallid bat in California. Mr. Huber also captured on June 8, at Beveno, an adult female, the only one apparently, in a large colony of free-tailed bats inhabiting a crevice above a barn door.

Nyctinomus mexicanus (Saussure)

MEXICAN FREE-TAILED BAT

This is probably the most abundant bat in the territory under consideration. As is well known, it is highly gregarious, living in colonies often of large size. So ready is it to take advantage of the shelter offered by human habitations, that colonies are more often found in the recesses of a roof than in caves, the primitive habitation. Mr. Huber discovered one cave fifteen miles northwest of Las Cruces, New Mexico, that was inhabited by this species. Twelve individuals taken at random here on June 2, proved to be all adult females, each with a good-sized fetus. At Bevino, there was a large colony living in the hollow space beneath a roof, entrance to which was gained through a crack over a door. Mr. Huber gathered 67 here on June 8, of which about one fourth were adult males, and the rest adult females, each containing a single fetus. In nearly every case the fetus was large and would probably have been mature in another week; a few, however, were smaller than the rest, while one or two were larger and seemed almost ready for extrusion. On the whole, however, the size of the embryos was rather uniform and indicates that in this colony at least, the breeding season is at a quite definite time. In most cases the fetus was carried transversely to the main axis of the body, with the head at the right-hand side, directed forward, and the little wings folded over the face.

The disproportionately small number of adult males seems typical of a breeding colony of this species. Mrs. Grinnell records a colony examined in San José, California, on February 2, in which the proportions of the sexes were about equal in clusters found behind the iron window shutters on the *west* side of a building; while on March 3, of 35 specimens from behind shutters on the *east* side of the same building all were females.

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THE VALIDITY OF THE PENOBSCOT FIELD MOUSE

BY LELAND C. WYMAN

In December, 1901, Mr. Reginald Heber Howe, Jr., described a new subspecies of *Microtus pennsylvanicus* which he had collected on Tumble Down Dick Island in Penobscot Bay, Maine, naming it *Microtus pennsylvanicus shattucki*.¹ There has been some doubt among mammalogists as to whether or not this form really differs from the ordinary meadow mouse of the mainland. Following are the results of a careful comparison of the type specimen and other skins of *M. p. shattucki* with about two-hundred skins of *Microtus pennsylvanicus* (Ord) in the collections of the Lee Museum of Bowdoin College, the Museum of Comparative Zoology of Harvard University, and various private collections. The specimens of *M. p. shattucki* which were examined consisted of the type and seven others of the original series from Tumble Down Dick and Ilesboro, Maine, now in the museum at Harvard and in the collection of the Boston Society of Natural History. These are the only specimens from the type locality which could be located. Others may exist in private collections. The specimens of *Microtus pennsylvanicus* used in the comparison were collected from four localities in Maine; three islands of the Maine coast; Grand Manan Island, New Brunswick; one other locality in Canada; three localities in New Hampshire; eleven localities in Massachusetts; seven islands near Cape Cod, Massachusetts; two localities in Rhode Island; one locality

¹ A New Race of *Microtus pennsylvanicus*. Reginald Heber Howe, Jr. Proc. Portland Soc. Nat. Hist., vol. 2, part 6, p. 201. Portland, Maine, December 31, 1901.